

Rhodora

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NOTES ON THE FLORA OF NEW BRUNSWICK.

S. F. BLAKE.

THE plants recorded in the following list were collected by the writer during some seven weeks of the late summer of 1913 spent collecting for the Gray Herbarium along the coastal sands of New Brunswick and the adjacent small islands. The period from 12 August to 3 September was spent at Bathurst on Bay Chaleur on the northern coast of the province, with side trips extending to Petit Rocher to the west, Miscou Island to the east, and the Drummond Iron Mine near Great Falls some distance in the interior from 4 September to 29 September at Chatham and Newcastle, on the Miramichi River, whence excursions were made to Tracadie on the north, Richibucto on the south, and the islands along the mouth of the Miramichi River. The last day's collecting in New Brunswick was done on 30 September at Moncton, on the Petitecodiac River.

The region about Bathurst consists largely of glacial sands and gravels. A mile or two inland extensive "blueberry barrens" are met with, having such representative species as *Lycopodium tristachyum*, *Pinus Banksiana*, *Betula alba* var. *papyrifera*, *Myrica asplenifolia*, *Salix humilis*, *Vaccinium canadense*, *V. pensilvanicum*, and *V. pensilvanicum* var. *nigrum*. The coastal rocks are largely indurated clays and sandstones. At Petit Rocher there is a deposit of limestone, and in a nearby bog or its vicinity were collected such characteristic calciphiles as *Carex aurea*, *Spiranthes Romanzoffiana*, *Salix candida*, *Betula pumila*, *Ranunculus Purshii*, *Parnassia caroliniana*, *Pyrola asarifolia*, and *Valeriana uliginosa*. Along the sands of the coast, from Miscou Island southward, *Myrica carolinensis*, *Betula populi-*

folia, *Euphorbia polygonifolia*, *Hudsonia tomentosa*, *Lechea intermedia*, and *Teucrium canadense* var. *littorale*, with various other species, find their northern limit, and in the brackish tidal flats of the Miramichi River *Lophotocarpus spongiosus* and *Samolus floribundus*. The only strictly endemic flowering plants at present known from the province are apparently *Aster laurentianus* Fernald var. *contiguus* Fernald and *A. subulatus* Michx. var. *obtusifolius* Fernald.

LYCOPODIUM TRISTACHYUM Pursh. Blueberry barrens, Bathurst (Blake 5419); Loggieville (5610); Newcastle (5659); in pine woods, Portage Island (5685); St. Louis de Kent (5725). I also found specimens collected by Cox in "sandy barrens behind Chatham, 1897," in the herbarium of the Miramichi Natural History Society at Chatham.

LOPHOTOCARPUS SPONGIOSUS (Engelm.) J. G. Sm. Brackish tidal mud, French Fort Cove, Miramichi River, Newcastle (5625); brackish tidal mud, mouth of Barnes Creek, two miles above mouth of Moulies River (5731). Recorded (as *Sagittaria calycina* var. *spongiosa*) in Fowler's list¹ (p. 67) from "near the head of the tide in the Richibucto River, and at Rothesay, Fowler, Herb.; Tobique River, Hay." Specimens collected by Fowler at Bass River, 28 July 1870, are in the Gray Herbarium.

DIGITARIA ISCHAEMUM Schreb. (*D. humifusa* Pers.: see Hubbard, RHODORA xviii. 231 (1916).) Along Intercolonial Railway, Petit Rocher (5489).

PANICUM SUBVILLOSUM Ashe. Bathurst (5383); sandy beach, Miscou Harbor (5570). The only *Panicum* found. Recorded by Hitchcock & Chase (Contr. U. S. Nat. Herb. xv. 228 (1910)) from Kent County, 1875, Fowler; also at Shediac Cape, 23 July 1914 Hubbard 716.

SETARIA VIRIDIS (L.) Beauv. var. WEINMANNI (R. & S.) Brand. (See Fernald & Wiegand, RHODORA xii. 133-134 (1910).) Along Intercolonial Railway, Petit Rocher (5488).

SCIRPUS CAMPESTRIS Britton var. FERNALDII (Bicknell) Bartlett. Brackish sands, Miscou Harbor (5584). New to the province, and a considerable range extension.—Our common form, var. *paludosus* (A. Nels.) Fernald, was also collected at Bathurst 5427) and on Bay du Vin Island in Miramichi Bay (5706), and a form approaching

¹ Rev. James Fowler, A Preliminary List of the Plants of New Brunswick (Nat. Hist. Soc. of N. B. Bull. no. IV). St. John, N. B. 1885. Pages [1]-82.

var. *novae-angliae* (Britton) Fernald was collected with the last (5707).

Juncus alpinus var. **insignis** \times **brevicaudatus**, hybr. nov. Planta habitu floribus etc. *J. alpino* var. *insigni* similis, staminibus tantum 3 *J. brevicaudati* donata.—Mud hole, Petit Rocher, 21 August 1913, Balke 5509.

A plant combining the general characters of *Juncus alpinus* Vill. var. *insignis* Fries with the three stamens of *J. brevicaudatus* (Engelm.) Fernald, and probably to be considered a hybrid between them. Both the presumed parents were collected at Bathurst and doubtless occur throughout the region, where no other species of this immediate group was met with.

JUNCUS EFFUSUS L. var. **COMPACTUS** Lej. & Court. (See Fernald & Wiegand, RHODORA xii. 84 (1910).) Roadside ditch, Richibucto (5730).

JUNCUS EFFUSUS L. var. **PYLAEI** (Laharpe) Fernald & Wiegand, l. c. 92. Pasture, Grande Anse (5534).

JUNCUS EFFUSUS L. var. **SOLUTUS** Fernald & Wiegand, l. c. 90. Roadside ditch, Richibucto (5729).

MYRICA CAROLINENSIS Mill. Grande Plaine, Miscou Island (5593); Portage Island (5669); Fox Island (5688); Richibucto (5711); Kouchibouguac (5726). Recorded (as *M. cerifera*) in Fowler's list (p. 56) from "sand beach on the sea shore, Kent and Northumberland [Counties], Fowler; Petitcodiac, Brittain." Also seen by Prof. Fernald from Kouchibouguac (herb. N. B. Nat. Hist. Soc.) and by the writer from Restigouche, Hay (herb. Miramichi Nat. Hist. Soc.); and in the Gray Herbarium from Miscou Island, 1905, Ganong; Fox Island, 1892, Fowler; Brulé, 1914, Hubbard.

BETULA POPULIFOLIA Marsh. Loggieville (5611); Portage Island (5671). Said to be common by Fowler (p. 56). Specimens are in the Gray Herbarium from Bass River, Fowler; St. Andrews, 1900, Fowler; Shediac Island, 1914, Hubbard.

QUERCUS RUBRA L. (of Gray's Man. ed. 7). A single tree in field, Moulies River (5732). The only oak-tree which I met with. Also seen by Prof. Fernald from Richibucto (herb. N. B. Nat. Hist. Soc.). Recorded by Fowler (p. 57) from Kent, Northumberland, and York Counties.

RUMEX PERSICARIOIDES L. (See St. John, RHODORA xvii. 80 (1915).) Wet sands back from beach, Miscou Harbor (5577). Determined by Dr. H. St. John.

POLYGONUM RAII Bab. (See Fernald, RHODORA xv. 71-73 (1913).) Sandy shore of Nepisiguit Bay, Bathurst (5397); sandy beach, Miscou Harbor (5563); a single plant, sea beach, Grande Plaine, Miscou Island (5597); sandy beach, Tracadie (5634). Not seen on the islands in Miramichi Bay.

CHENOPODIUM RUBRUM L. Brackish sands, Portage Island (5684).

ATRIPLEX MARITIMA E. Hallier. (See Blake, RHODORA xvii. 83-86 (1915).) Sand bar and sandy beach, Miscou Harbor (5559, 5565); sea beach, Grande Plaine, Miscou Island (5598); beach, Fox Island (5692).

SUAEDA AMERICANA (Pers.) Fernald. The common *Suaeda* of the eastern New Brunswick coast. Of eleven collections of the genus, made at Miscou Harbor, Lameque, Neguac Island, Fox Island, Bay du Vin Island, Richibucto, and Moncton, ten belonged to this species. One of the two collections made at Moncton, however, was of the next species.

SUAEDA MARITIMA (L.) Dumort. Moncton (5739).

ARENARIA PEPLOIDES L. var. *ROBUSTA* Fernald, RHODORA xi. 114 (1909). Tracadie Beach (5650); Portage Island (5679); Fox Island (5695); Bay du Vin Island (5696, 5697); North Beach, Richibucto (5717). Recorded by Fowler (p. 18), under *A. peploides*, as "rare. On sandy shore, Shediac, Fowler; Dalhousie, Ross; Restigouche, Chalmers." Also seen by Prof. Fernald from Kouchibouguac (herb. N. B. Nat. Hist. Soc.), and by the writer from Portage Island, Cox (herb. Miramichi Nat. Hist. Soc.).

MONTIA RIVULARIS Gmel. (See Fernald & Wiegand, RHODORA xii. 138. t. 84. f. b (1910).) Along brook, Chatham, 4 September (5601). First record for the American continent; previously recorded by Fernald & Wiegand from Newfoundland.

RANUNCULUS PURSHII Richards. In brook, Petit Rocher (5508). Recorded by Fowler (p. 12) as *R. multifidus* from "ditches at Point de Bute and Belledune"; these specimens have been examined by Prof. Fernald, as have others collected at Bass River, Fowler.

[*Draba incana* L. Fowler (p. 15) has the following note regarding this species. "Cambridge, Sept. 14, 1881.—I have just received a specimen of *Draba incana* L., collected by Mr. Charles Lindon of Buffalo, N. Y., in or near Bathurst, N. B.—Serenio Watson." In their revision of the Drabas of this group, Fernald & Knowlton (RHODORA vii. 64 (1905)) likewise referred these specimens (three stems)

to *D. incana*, recording them as from "near Bathurst." Re-examination by Prof. Fernald, however, has shown them to belong not to *D. incana* but to *D. megasperma* Fernald & Knowlton. This latter species is abundant at Paspébiac Beach, a popular place for holiday excursions across the Bay Chaleur from Bathurst, and Prof. Fernald is inclined to believe that the specimens in question came from that place. In any case, the species should be removed for the present from the list of plants definitely known from New Brunswick.]

DRABA INCANA L. var. *CONFUSA* (Ehrh.) Pers. Grass plain, Grande Plaine, Miscou Island, 28 August (5590). New to the Gray's Manual range.

SISYMBRIUM OFFICINALE (L.) Scop. Waste ground, Chatham (5737).

TILLAEA AQUATICA L. Brackish tidal mud, French Fort Cove, Miramichi River, Newcastle (5626).

PYRUS ARBUTIFOLIA (L.) L. f. var. *ATROPURPUREA* (Britton) Robinson. *Ammophila* plain, Portage Island (5678); marsh, Richibucto (5724). A specimen in herb. Miramichi Nat. Hist. Soc., from Bass River, *Fowler*, recorded as var. *melanocarpa* in *Fowler's* list (p. 26), also represents this form.

AMELANCHIER STOLONIFERA Wiegand, *RHODORA* xiv. 144. t. 95. f. 4 (1912). *Ammophila* plain, Portage Island (5677). Determination verified by Prof. K. M. Wiegand.

CRATAEGUS MONOGYNA Jacq. (See *RHODORA*, xi. 47 (1909).) In field, Richibucto (5735).

CRATAEGUS ROTUNDIFOLIA Moench. Bank of Moulies River, near junction with Richibucto River (5733).

POTENTILLA PALUSTRIS (L.) Scop. forma *SUBSERICEA* (Becker) Wolf. (See Blake, *RHODORA* xv. 165 (1913); Fernald & Long, l. c. xvi. 9-10 (1914).) Dampish meadow, Tracadie (5646).

POTENTILLA TRIDENTATA Ait. Pasture, Miscou Harbor (5544). *Fowler* (p. 26) notes it from "Buctouche, Carleton, *Fowler*; Sugar Loaf, Restigouche, *Chalmers*; Nerepis, Upper St. John, Head Waters of Tobique, Douglas Mountain, *Hay*, Herb., Bulletin II. 32." The species is also in the Gray Herbarium from Casey's Cape, Kent Co., 1914, *Hubbard*; St. Andrews, 1900, *Fowler*; dry ledges by St. John R., Connors, 1903, *Pease* 2947.

EUPHORBIA POLYGONIFOLIA L. Sandy beach, Tracadie Beach (5651). Recorded by *Fowler* (p. 55) from "Kouchibouguac beach in sand."

HUDSONIA TOMENTOSA Nutt. Neguac Island (5661); Portage Island (5675); Fox Island (5689); Richibucto (5710); Kouchibouguac (5728). Fowler records it (p. 16) as "abundant on Kouchibouguac beach, *Fowler*; Bathurst, *Chalmers*." A specimen from Portage Island, collected by Cox, has been seen by Prof. Fernald in herb. New Brunswick Natural History Society; and material collected by Cox on Portage Island and at Tracadie has been examined by the writer. It is also in the Gray Herbarium from St. Andrews, 1909, *Klugh* 14.

LECHEA INTERMEDIA Leggett. Portage Island (5672); Fox Island (5690); Richibucto (5709); Kouchibouguac (5727). Listed by Fowler (p. 16), as *L. minor*, from "Kouchibouguac Beach, Goat Island in Grand Lake, *Fowler*; *Hay*, Herb.; Hopewell, *Brittain*."

OENOTHERA PUMILA L. var. RECTIPILIS Blake, RHODORA xix. 110 (1917). Type from Petit Rocher (5513). Fowler (p. 29) records *O. pumila* from "Bass River, *Fowler*; near St. John, *Hay*, Herb." The varietal identity of these specimens remains in doubt. Specimens in the Gray Herbarium from Shediac Cape, 1914, *Hubbard*, belong to true *O. pumila*.

CHIMAPHILA UMBELLATA (L.) Barton var. CISATLANTICA Blake, RHODORA xix. 241 (1917). Type from Bathurst (5435). Fowler (p. 43) lists it, under name *C. umbellata*, as common.

KALMIA ANGUSTIFOLIA L. Coniferous woods, Bathurst (5413). A woodland form with leaves somewhat broader than usual, not revolute, and green beneath. I have also collected this form in coniferous woods at Cherryfield, Maine (*Blake* 4000 in part), but have not yet found it fruiting.

LIMONIUM TRICHOGONUM Blake, RHODORA xviii. 61. t. 119, f. E (1916). Type from Loggieville (5624); also collected on Neguac Island (5666). Fowler (p. 44) lists this species, under *Statice Limonium* var. *caroliniana*, as "common in salt marshes round the coast."

SAMOLUS FLORIBUNDUS HBK. Bank of French Fort Cove, Miramichi River, Newcastle (5628). Fowler (p. 45), under *S. Valerandi* var. *americanus*, says: "muddy shore of a small brook at Kouchibouguac, only place I have noticed it." In herb. Miramichi Nat. Hist. Soc., at Chatham, I found specimens from "Salmon Hatchery, N. W. Mir., 1901, *MacIntosh & Cox*."

TEUCRIUM CANADENSE L. var. LITTORALE (Bicknell) Fernald. In sand, Neguac Island, 16 September (5667). First definite record for

New Brunswick. Fowler (p. 52), whose record has not been incorporated in our manuals, lists what was probably this form, as *T. canadense*, from "sand beach, Kouchibouguac."

GALEOPSIS TETRAHIT L. (See Fernald & Wiegand, RHODORA xii. 141-142 (1910).) Edge of pasture, Bathurst (5466). Corolla white.—The commoner form, var. *bifida* (Boenn.) Lej. & Court., was also collected at Bathurst, in a cultivated field (5479).

LINARIA MINOR (L.) Desf. Along Intercolonial Railway Petit Rocher (5487). Recorded by Fowler (p. 10) from "Ballast Wharf, St. John, Hay, 1881;" and by Fernald & Wiegand (RHODORA xii. 142 (1910)) as abundant at Fairville.

GALIUM TRIFIDUM L. var. HALOPHILUM Fernald & Wiegand, RHODORA xii. 78 (1910). Inner edge of brackish flats, Bathurst (5402); sand bar, sandy beach, and wet sands back of beach, Miscou Harbor (5560, 5575, 5581); sandy beach, Tracadie (5637).

ASTER LAURENTIANUS Fernald var. CONTIGUUS Fernald, RHODORA xvi. 60. t. 109. f. 5 (1914). Type and only known collection from Tracadie (5645).

ASTER SUBULATUS Michx. var. OBTUSIFOLIUS Fernald, l. c. 61. t. 109. f. 6. Type from Bathurst (5372); also collected there by Williams & Fernald in 1902.

ANTENNARIA CANADENSIS Greene. Bathurst (5384). The only *Antennaria* met with.

ACHILLEA PTARMICA L. Grassy roadside, Bathurst (5432). Considered by Gray (Syn. Fl. i. pt. 2. 363), on the basis of Fowler's specimens (see List, p. 38), as "apparently indigenous in Restigouche and Kent Counties."

SONCHUS ARVENSIS L. var. GLABRESCENS Wimm. & Grab. (See Fernald & Wiegand, RHODORA xii. 145 (1910).) Sandy shore of Nepisiguit Bay, Bathurst (5395).

GRAY HERBARIUM.

THE DIAGNOSTIC CHARACTER OF VALLISNERIA
AMERICANA.

M. L. FERNALD.

It has become so fixed a tradition in North America that our fresh-water Eel Grass or Tape Grass is *Vallisneria spiralis* L. that very few students of our flora have made a critical comparison of the American plant and the true *V. spiralis* of Europe. The European species is found only from the Mediterranean region northward into southern and southeastern Europe and adjacent Asia, not in the northern portions of the continent nor the British Isles, and therefore, as an essentially Mediterranean species, is not to be expected as a widely distributed plant of temperate eastern North America. Our own plant is found in fresh waters from central Maine to South Dakota and south to Florida and the Gulf States. In 1803 Michaux described the North American plant as a distinct species, *V. americana*, as follows:

"AMERICANA. *V. foliis erectis: pedunculis non spiralibus.*

Obs. Folia minus quam in *spiralis* elongata, stantia, inferne non angustata.

Hab. In flumine *Mississipi* et in fluvio *S. Joannis* Floridae." ¹

Subsequent authors for some years took up *V. americana* as distinct but added nothing particularly significant to the description until Nuttall in 1818 stated that the male peduncles are "very short" but that the plant is "Apparently a mere variety of *V. spiralis*." ² In 1826 Torrey definitely treated the American plant as a variety, calling it *V. spiralis*, β *americana* and again stating the character pointed out by Nuttall, "sterile peduncles very short." ³ After Torrey's publication the varietal designation was soon dropped and our plant has subsequently been treated as quite identical with the European. It is not perfectly clear that Nuttall and Torrey, in speaking of the short peduncle of the staminate inflorescence, were contrasting it with the peduncle in the European for they may have intended merely a contrast with the long peduncle of the pistillate flower which becomes in fruit more or less spiralled.

¹ Michx. Flor. Bor. Am. ii, 220 (1803).

² Nutt. Gen. ii. 230 (1818).

³ Torr. Compend. 365 (1826).

Examination of European specimens and of European plates shows at once that, as would be expected, there is a very definite difference between the European and American plants. In the staminate inflorescence the pouch or spathe of the European plant, as shown in all good European specimens and illustrations, is borne upon a slender filiform scape, which in maturity is 1.6–7 cm. long and only 0.5–1.2 mm. thick, and the spathe itself is ovoid, strongly rounded at base and only 6–9 mm. in length. The staminate spathe in the American plant is often nearly sessile, but more often on a short club-shaped thick scape 0.2–2 cm. long and 1.5–3 mm. thick, the spathe itself being much larger than in the European, 1–1.6 cm. long, and narrowed gradually into the thick scape. This pronounced difference in the staminate inflorescences is constant in all material examined which has been in condition to display the character, although definite diagnostic characters in the pistillate flowers and fruit have not been found. It would seem, however, in view of the striking differences in the staminate inflorescences, that we should recognize *Vallisneria americana* Michx. as the common American plant.

Very recently Rydberg¹ has revived *V. americana*, but not in the sense of the present writer, for Rydberg has treated the common North American plant as quite identical with the European *V. spiralis*, citing various European illustrations as representing it and treating *V. americana* as a local species found from “Florida to Mississippi” with the type locality “Mississippi River.” Rydberg attempts to separate the southern plant, which he calls *V. americana*, from the widely dispersed species on the following characters:

Stigmas 2-cleft for less than half their length; sepals 2–3 mm. long; pistillate peduncles usually spiral-twisted in fruit; leaves 3–8 mm. wide.

1. *V. spiralis*.
Stigmas 2-cleft to near the base; sepals 5–6 mm. long; pistillate peduncles scarcely spiral-twisted in fruit; leaves 6–20 mm. wide. . . 2. *V. americana*.

The writer has not seen sufficient material from the Gulf States to feel confident that the stigma-characters indicated by Rydberg are important, but such material as he has before him shows a plant from Florida (*Hitchcock*, no. 376) with sepals only 3.5 mm. long (instead of 5–6 as Rydberg requires for the Florida plant) and material from Mississippi (*Skehan*) with leaves 5–7 mm. broad (instead of 6–20 mm. as required of the Mississippi plant by Rydberg), while among the

¹ Rydb. N. A. Fl. xvii. 68, 69 (1909).

northern specimens it is frequent to find sepals 5 mm. in length (Rydberg restricts the sepals of the northern plant to a length of 2-3 mm.) or the leaves well over 1 cm. broad (for example *Gleason* and *Shobe*, no. 184 from Illinois, with leaves 12 mm. broad). It does not seem very probable that there are two American species; at any rate, most of the characters stated by Rydberg are thoroughly inconstant and it is very certain, if Michaux's *V. americana* is typified by his plant from the Mississippi River, that the type did not come from the range "Florida to Mississippi" assigned to *V. americana* by Rydberg. The Mississippi River known to Michaux was entirely in western Illinois, Michaux making his trip to the Mississippi in 1795-96 and exploring along the Mississippi in Illinois southward as far as the mouth of the Ohio, thence along the Ohio and tributary rivers eastward. Any material of *V. americana* which he collected in the Mississippi River must, then, have come from Illinois, and *V. americana*, if it rests alone upon the Mississippi River material, is clearly the common species of the North and not a different plant which may or may not exist in the Gulf States. From what has been stated, it is clear that our American *V. americana* differs very definitely from the southern European species, *V. spiralis*, in its staminate inflorescences and that treated as a species it is *V. americana* Michaux, or as a variety it would be *V. spiralis*, var. *americana* (Michx.) Torr.

GRAY HERBARIUM.

JOSELYN BOTANICAL SOCIETY OF MAINE.—The Twenty-fourth Annual Field Meeting will be held at Phillips, July 2, 1918, with headquarters at the Willows Hotel. Further notice will be sent to members, and to others interested, on request, at least two weeks previous to the meeting.—MISS ADALINE WILLIS, Secretary, Naples, Maine.

SPIRANTHES IN DOVER, MASSACHUSETTS.

HAROLD ST. JOHN.

SEVERAL times during the last twelve years the writer has collected from a grassy field forming part of his grandmother's farm in Dover, Massachusetts, specimens of a big grass-leaved *Spiranthes*. It proves to be *S. vernalis* Engelm. & Gray. By the margin of a few miles this is a new most northern station for the plant. The nearest record being that from Randolph: sandy roadside, Canton Road, Sept. 5, 1898, J. R. Churchill.

From the first the writer had difficulty in identifying these specimens, because the lip did not really seem to be "pubescent beneath." In those earlier years his instinctive reverence for the exact truth of all words appearing in a book, especially a botany, made the finder realize that either his eyes or the plants themselves were at fault and made him force himself to see the lip as "pubescent beneath." When last summer this plant was again collected, the discrepancy was still apparent, and this time he was in a position to consult original sources, other collections, and to review all the evidence.

Because of his own difficulties when studying this species and in the hope of helping other botanists, the writer makes a few comments on its description in the current manuals. In Prof. Ames's treatment in Gray's Manual, ed. 7, 313 (1907) the key-character leading to this species is,

"++*Lip ovate to ovate-oblong, pubescent beneath.*"

The lip of this species is from ovate to ovate-oblong in shape, but it cannot be accurately described as "pubescent beneath." Between the two nipples on the upper side of the lip is a long white villosity. This grades off into a fine puberulence which in the immediate neighborhood of the callosities covers the upper surface of the lip, the margins and to a slight extent runs over on to the lower surface immediately beneath the callosities.

The leading phrase in the key in Britton & Brown's Illustrated Flora, i. 564 (1913) is equally inapplicable.

"Lip pubescent without, of an ovate type, the base dilated."

On the same score this also fails to describe the real condition, and one having the actual plant before him would have difficulty in identi-

fyng it properly. Both of these treatments follow closely that of Prof. Ames in his "Synopsis of the Genus *Spiranthes* North of Mexico," Ames: Orchidaceae, Fasc. i. 124 (1905) where he used a similar statement in his key:

"Lip ovate to ovate-oblong, usually equalling the sepals and petals; not laciniate at the tip, broadest in front of the callosities, pubescent beneath."

The amount and position of the pubescence on the lip of this species is well represented in an enlarged drawing on a sheet of the type number (*Lindheimer*, no. 191) in the Gray Herbarium; and in Plate 51, fig. 5, RHODORA, vi. 31 (1904). This plate, drawn by Mrs. Ames, illustrates this species in an article written by Prof. Ames in which he described it as *S. neglecta* Ames.

After further study and the inspection of additional material Prof. Ames decided¹ that his *S. neglecta* was identical with and would have to be placed in the synonymy of *S. vernalis* Engelman & Gray. If the pubescence on the lower surface of the lip of *S. vernalis* is to be used as a key character to separate it from the more southern *S. praecox* (Walt.) Wats. & Coult., then the small quantity and definite localization of this pubescence should be stated. The lips of both these species are, when seen with considerable magnification, finely papillose, but this would not conceivably be confused with pubescence. The callosities of *S. praecox* are cylindrical, longer, and more divergent than those of *S. vernalis*.

In the large sloping field on the north side of Farm St., Dover, where these plants were growing, *S. gracilis* (Bigel.) Beck was abundant and growing intermingled with *S. vernalis*. There were also some plants with the grass-like leaves and the yellowish-white tinge of the corolla and the puberulent summit of the culm of *S. vernalis*; but with the more slender habit, the more slender spike with fewer looser spirals, and with the smaller corolla of *S. gracilis*. In these the lip is quite intermediate in character. It resembles that of *S. gracilis* in size and in its crisped outer margin. It has a suffusion of yellowish-green color down its centre and in the callosities, suggestive of the deep green color of the body of the lip of *S. gracilis*. The lip is narrower, being oblong (3 mm. in width) while the lip of *S. gracilis* is quadrate (4 mm. in width).

¹ Ames, Oakes: Orchidaceae, Fasc. i. 113-7 (1905)

Another collection of this puzzling plant (*St. John*, no. 2,046) showed likewise a blending of the characters of *S. vernalis* and *S. gracilis*, but in this case they were combined differently. The specimens resemble *S. gracilis* in the size of the corolla and the quadrate shape of the lip; they resemble *S. vernalis* in having the summit of the culm pubescent as in that species; they show characters intermediate between those of the two species in that the lip is partially suffused with green and is somewhat crisped at the margin, while the spirals of the spike are fewer and more distant than in *S. gracilis* but not as much so as in *S. vernalis*. These plants are without doubt of the same nature as those collected at Easton, Massachusetts, and described as *S. × intermedia* Ames.¹ As in Dover, the plants in Easton were growing in the immediate proximity of the alleged parents, *S. gracilis* and *S. vernalis*.² The second occurrence of this natural hybrid, at a different station is a noteworthy bit of evidence towards Prof. Ames's suggestion that this apparently fertile hybrid may rapidly establish itself as a distinct species. There is every reason for the supposition that at this second known station the crossing has again occurred, instead of the supposition that the plant has spread from the original station at Easton.

Close observation and study of these specimens from Dover in the fresh condition seems to confirm Prof. Ames's statement³ that "*Spiranthes × intermedia* is a non-Mendelian hybrid. It is intermediate throughout, the characters of both parents being merged in all the important vegetative and floral parts."

In order to bring out any relation between the location of the hybrid plants and those of the parent species, the writer made a census of their occurrence in this part of Dover. Mrs. Everett's field in which *Spiranthes vernalis* has grown for at least twelve years is nothing but a rather dry hayfield on a gentle south slope in the western and higher part of Dover. A definite ridge running across it divides this six acre field into two nearly equal parts, one to the west, and one to the east, which is lower, with a definite gully running through it. This

¹ RHODORA, v. 262 (1903).

² Prof. Ames originally described *S. × intermedia* as a hybrid of *S. gracilis* (Bigel.) Beck and *S. praecox* Watson, but he later demonstrated [Ames: Orchidaceae, Fasc. i. 113-21 (1905)] that the northern plant which he had called *S. praecox*, should be treated as *S. vernalis* Engelm. & Gray. Hence the hybrid $\times S. intermedia$ Ames is to be considered as one between *S. gracilis* (Bigel.) Beck and *S. vernalis* Engelm. & Gray.

³ RHODORA, v. 263 (1903).

eastern section of the field is moister and produces a more luxuriant stand of grass and a larger number of the *Spiranthes*. In the thorough search it was discovered that these orchids also occurred in a nearby, but not contiguous, hay field belonging to Mr. Gardner. Mrs. Everett's field has to the author's certain knowledge been continuously cultivated for over fifty years, and probably much longer than that, for it has been in the possession of the same family for five generations. One would never think of inspecting such fields as these in search for orchids. It is of course their late blooming that allows them to exist here. After the hay has been cut, they send up their stalks and come into flower undisturbed about the first week of September. How the plants survive the occasional plowing is more of a mystery. The relative abundance of these plants in the three areas is brought out in the following table.

Species	Number of plants in western part of Everett field.	Number of plants in eastern part of Everett field.	Number of plants in Gardner field.
<i>S. vernalis</i> .	1	44	38
× <i>S. intermedia</i> .		9	1
<i>S. gracilis</i> .	36	295	19

In the eastern part of the Everett field both of the species *S. gracilis* and *S. vernalis* are not only more abundant than in the other localities, but they grow much closer together. Hence in this area a visiting bee would have a greater chance of making a mistake and, with the boat-shaped scale together with its attached pollinia of one species glued to his proboscis¹ he would occasionally fly to the lowest flower of a spike of the other species. Here he would climb up the spiral flowery staircase stopping at each landing to sip of the nectar and fertilize the stigma with the foreign pollen that would give rise to more plants of × *Spiranthes neglecta* Ames.

GRAY HERBARIUM.

¹ For a description of the method of the cross fertilization of the flowers of this genus and of *S. gracilis*, see Darwin, Charles: Fertilization of Orchids by Insects, 2nd ed. 105-14 (1877); and Robertson, Charles: Flowers and insects. ix., Bot. Gaz. xvii. 51-2 (1893).

PLANTS FROM SOUTH WEYMOUTH, MASSACHUSETTS.

CLARENCE H. KNOWLTON.

GREAT POND is a moderate-sized sheet of fresh water, perhaps a mile long. It lies in the southwestern part of Weymouth, bordering on Abington. As various coastal-plain plants have been reported there, I visited the region somewhat briefly on October 14, 1917. My first collection of interest was *Rynchospora macrostachya*, var. *inundata*, previously found here with the species by E. and C. E. Faxon and others (RHODORA, xiii. 105, 1911). I did not find much of the variety, and none of the species. There were also a few fruited plants of *Sabatia Kennedyana* Fernald, and a good many fruited specimens of *Rhexia virginica*, in moist shore gravel.

The most exciting discovery was a large rather dense colony of *Panicum debile* Ell. (*P. verrucosum* Muhl.), a very interesting species which has the second glume and sterile lemma warty or verrucose. It grew luxuriantly in moist sandy soil near the pond. This is the first report of this grass north of Kingston, so this is an addition to the Boston Local Flora. It was first found at Plymouth by William Oakes, and for many years this was the only known New England station. It has recently been rediscovered at Plymouth, and there are specimens from Kingston, Carver, Lakeville, Barnstable, Yarmouth and Dennis in the New England Botanical Club Herbarium. Mr. Luman Andrews and others have found it at several stations in Springfield. Prof. J. F. Collins and Prof. M. L. Fernald have found it at Hopkinton, R. I., and Mr. E. B. Harger at New Haven, Conn.

Another plant of much interest was *Cuscuta compacta*, which was abundant on twigs of *Acer rubrum* and *Clethra alnifolia*. On the latter it formed spirals on stems one centimeter and more in diameter, "the ripening capsules capped with the marcescent corolla." Another common shrub near the pond is *Leucothoe racemosa*.

Further circuit of the pond shores ought to reveal other attractive plants. To any Boston botanist wishing an afternoon with coastal plain species I recommend a trip to this easily accessible region.

HINGHAM, MASSACHUSETTS.

SOME RHODE ISLAND GRASSES.—The following grasses appear to be new to the recorded flora of Rhode Island.

Puccinellia paupercula alaskana.¹ This plant occurs at Westerly, where it is the prominent grass on a large, sand-coated marsh, growing with *Spergularia leiosperma*, *S. salina*, *Suaeda linearis* and other saline species.

Panicum virgatum cubense. This variety occurs associated with the species at Westerly. Mrs. Agnes Chase, who has kindly examined specimens from Westerly, states that they are exactly like Graves, 244, Groton, Connecticut, August 16, 1901.² Both have the narrow panicle and small spikelets of var. *cubense*, but the glumes and sterile lemma are more pointed than in characteristic var. *cubense* from New Jersey southward. Mrs. Chase adds that they are, however, nearer to the variety than they are to the species.

Panicum oricola. This species is abundant in Westerly at several stations along the shore of the Sound. Specimens have been verified by Mrs. Chase.—R. W. WOODWARD, New Haven, Connecticut.

A NEW VARIETY OF *TRIOSTEUM AURANTIACUM*.—In central New York there are two well marked forms of *Triosteum aurantiacum* which do not seem to intergrade to any appreciable extent. Both are about equally common. The two types differ in the lower surface of the leaves as follows: typical form of the species, leaves densely velvety-canescens beneath.

Var. *glaucescens*, var. nov., foliis subtus glabris aut ad venas sparse pilosis.

Leaves glabrous beneath or sparsely pilose along the veins.—Common in central New York. The only other specimen seen is from "South Mountain above Penryn, Lebanon County, Pennsylvania, May 1891" Heller & Halbach. TYPE (in herb. N. Y. State Col. of Agric. Ithaca): rich bottomland, Paine's Creek, Ledyard, Cayuga County, New York, June 20, 1916, K. M. Wiegand, no. 7196.

In 1836, Rafinesque (New Flora N. A. Pt. 2, p. 35-37) published six new names in *Triosteum* but I cannot definitely ascribe any of these either to *T. aurantiacum* or the present variety, though probably Rafinesque had at least one of these plants in hand.—K. M. WIEGAND, Cornell University.

¹ Fernald & Weatherby, RHODORA, xviii. 18 (1916).

² North American Panicum, Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 92 (1910).

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